

USSR

ZAYTSEVA, K. K. et al, Doklady Akademii Nauk SSSR, Vol 193, No 3, pp 703-705

sickness. Intensification of the thyrotropic activity of the anterior part of the pituitary gland is a compensating reaction to thyroid insufficiency, which, however, does not lead to elimination of hypothyreosis because of the disease of the thyroid. It may also be the result of a disturbance in the mechanisms of thyrotropic hormone removal.

2/2

USSR

617-001.28-089.843-032:611.018.46

BUTOMO, N. V.

Transplantatsiya Kostnogo Mozga pri Luchevykh Porazheniyakh (Bone Marrow Transplantation in Radiation Injury), Leningrad, "Meditsina," 1970, 191 pp

Translation: Annotation: Modern ideas about the nature of processes developing in an irradiated organism upon transplantation of hemopoietic cells and the possibilities and prospects for the application of bone marrow transplantations are presented in the book.

The pathogenic foundations of bone marrow transplantation in radiation sickness are discussed in two chapters of the first part of the book: the history of the problem is reviewed, the basic methods utilized in myelotransplantation are described, and the results of the transplantation are assessed. The characteristics of radiation sickness and the hemopoietic changes which follow bone marrow transplantation in different types of animals and humans are described in detail in subsequent chapters.

Problems concerning the mechanism of action of bone marrow transplantation and the development of the main complication of myelotransplantation -- the

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BUTOMO, N. V., Transplantatsiya Kostnogo Mozga pri Luchevykh Porazheniyakh
(Bone Marrow Transplantation in Radiation Injury), Leningrad, "Meditsina,"
1970, 191 pp

secondary disease -- are discussed in the second part of the book. Data on
ways of overcoming the immunological barriers and complications are cited.

Arguments proving the possibility of using cadaver bone marrow for the
treatment of radiation sickness are presented in the third part of the
book. Data on preservation of bone marrow cells are also cited.

Criteria for bone marrow transplantation in man are discussed in the con-
clusion. The role and place of myelotransplantation in the treatment of
radiation sickness are characterized.

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Part I:

The Effect of Bone Marrow Transplantation on the
Development of the Pancytopenic Syndrome in Radiation
Sickness.

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(Bone Marrow Transplantation in Radiation Injury), Leningrad, "Meditsina,"
1970, 191 pp

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BUTOMO. N. V., Transplantatsiya Kostnogo Mozga pri Luchevykh Porazheniyakh
(Bone Marrow Transplantation in Radiation Injury), Leningrad, "Meditsina,"
1970, 191 pp

Part II:

Problems Concerned With the Mechanism of Action of Bone
Marrow Transplantation in Radiation Sickness.

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BUTOMO, N. V., Transplantatsiya Kostnogo Mozga pri Luchevykh Forazheniyakh
(Bone Marrow Transplantation in Radiation Injury), Leningrad, "Meditsina,"
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5/5

1/2 031
TITLE--EXPERIENCE IN NONSELECTIVE ELECTROCARDIOSCOPIC EXAMINATION OF YOUNG
REPLACEMENTS -U-
AUTHOR--BUTORIN, B.B.
COUNTRY OF INFO--USSR
SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 3, P 128
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CARDIOVASCULAR SYSTEM, MYOCARDIUM, DIAGNOSTIC METHODS,
ELECTROCARDIOGRAPHY, MILITARY MEDICINE, MEDICAL EXAMINATION/(U)EKP5M
MEDICAL EQUIPMENT, (U)VEKSOI MEDICAL EQUIPMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/0371
CIRC ACCESSION NO--AP0135862
STEP NO--UR/0177/70/000/003/0128/0128
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135862

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IT IS WELL KNOWN THAT DISEASES OF THE CARDIOVASCULAR SYSTEM OCCUPY A CONSIDERABLE PLACE IN THE PATHOLOGY OF YOUTH. SOME OF THEM PROCEED LATENTLY AND ARE DIFFICULT TO DIAGNOSE, AND THIS OFTEN LEADS TO SEVERE CONSEQUENCES. THUS, IN THE LAST THREE YEARS WE HAVE OBSERVED THREE CASES OF MYOCARDIAL INFARCT IN PERSONS ABOUT 24 YEARS OF AGE. ONE OF THE MOST RELIABLE AND OBJECTIVE METHODS OF DIAGNOSIS OF DISEASES OF THE CARDIOVASCULAR SYSTEM IS ELECTROCARDIOGRAPHY (ELECTROCARDIOSCOPY). IT IS USED TO DETECT LATENTLY PROCEEDING CARDIAL PATHOLOGY, FOR EXAMPLE, CERTAIN FORMS OF RHEUMATISM, CORONARY INSUFFICIENCY, ETC. WE HAVE CONDUCTED NONSELECTIVE ELECTROCARDIOSCOPY OF A GROUP OF PERSONS WHO WERE YOUNG REPLACEMENTS. THE ELECTROCARDIOSCOPY WAS DONE WITH VEKS 01 APPARATUS WITH STANDARD AND THORACIC LEADS. UPON DETECTION OF ANY SORT OF DEVIATION FROM THE NORM AN ELECTROCARDIOGRAM WAS RECORDED ON AN EKP 5M ELECTROCARDIOGRAPHY FOR MORE CAREFUL ANALYSIS AND DYNAMIC OBSERVATION. THE INVESTIGATION WAS CONDUCTED DURING THE TIME OF MEDICAL EXAMINATION UPON ARRIVAL OF THE REPLACEMENTS IN THE CHAST' BY A TEAM CONSISTING OF A THERAPEUTIST, A RECORDING NURSE WHO HAD MASTERED THE TECHNIQUE OF ELECTROCARDIOGRAPHY, AND TWO ASSISTANTS TRAINED IN THE APPLICATION OF ELECTRODES.

UNCLASSIFIED

USSR

UDC 621.762.2(088.8)

3

PATYUKOV, G. M., ROMANOV, A. I., BARANOV, M. N., BUTORIN, N. I., KHROMENKO, G. S., GONCHAROV, M. T., and SAGUNOV, T. M., Noril'sk Mining and Metallurgical Combine imeni A. I. Zavenyagin

"Electrolyzer for Making Metal Powder"

USSR Authors' Certificate No 267080, Cl. 40c, 1/02; 40c, 5/00, (C 22d), filed 21 Feb 67, published 23 Jan 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract NO 3G405P)

Translation: The electrolyzer contains a bath, anodes, disk cathodes fastened on a shaft, current supply unit, and drive mechanism. In order to decrease power consumption and increase dependability of electrolyzer operation, the drive mechanism is supplied with a toothed rack, which engages with the gear that is fixed on the shaft with the cathodes and imparts to the cathodes a reciprocating motion along the path of a pendulum. The contact at the point of the current supply to the shaft by the cathodes is made to be fixed. One illustration.

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, USSR

UDC: 621.372.2

BUTORIN, V. M., DMITRIYEV, V. M., KRIVOSHEYEV, Ye. F., PAVLYUK, V. A.,
TRET'YAKOV, O. A.

"Impedance Matching Between a System of Superconducting Thin-Film Tunnel
Contacts and Free Space"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1885-1892

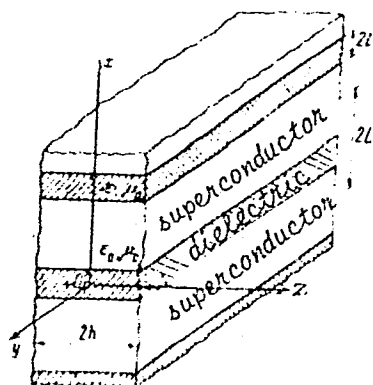
Abstract: The paper deals with the problem of plane electromagnetic wave excitation of a periodic system of strip lines (see figure) consisting of superconducting metal strips separated by a thin layer of a homogeneous isotropic dielectric material with thickness $2l \sim 10^{-7}$ cm. Conditions are found for matching between the impedance of this system and that of free space, and the passband and amplitude of the field within the contact at resonance are determined. The results may be treated as part of the solution of the general problem for synthesis of tunnel contacts in which the effect of weak superconductivity is observed. In reality, in the small-signal approximation the Josephson effect is described by a system of linear equations which in this instance must be solved simultaneously with the Maxwell equations and the equation for the normal and superconducting current components

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USSR

BUTORIN, V. M. et al., Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1885-1892

as functions of the electric field intensity. The results of the work would seem to imply that the tunnel effect will introduce certain corrections into the condition found for impedance matching, but will not change it in any essential way, and that matching of a system of Josephson contacts with free space will be possible.



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1/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A CONTROLLED FLEXIBLE BETA PROBE FOR CONTACT RADIOMETRY OF
MALIGNANT NEOPLASMS OF THE LUNGS -U-
AUTHOR--(03)-KRISHTAFOVICH, A.A., BUTORIN, YE.P., TSAREV, A.S..
COUNTRY OF INFO--USSR **B**
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 72-74
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RADIOMETRY, NEOPLASM, LUNG, MEDICAL EQUIPMENT, DIAGNOSTIC
EQUIPMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1519 STEP NO--UR/0214/70/015/006/0072/0074
CIRC ACCESSION NO--AP0128914
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CONTROLLED FLEXIBLE BETA PROBE IS PROPOSED FOR CONTACT RADIOMETRY OF MALIGNANT NEOPLASMS OF THE LUNGS. THE DESIGN OF THE PROBE IS SUCH THAT IT COULD BE INTRODUCED INTO ANY REGIONS OF THE BRONCHIAL TREE, LOBAR, SEGMENTAL AND SUBSEGMENTAL BRONCHI. THE POSSIBILITY OF INSTRUMENTAL CONTACT WITH THE PATHOLOGICAL FORMATION COULD BE USED FOR PURPOSES OF DIFFERENTIAL DIAGNOSIS OF MALIGNANT AND BENIGN TUMORS OF THE LUNGS. FACILITY: RENTGENOLOGICHESKIY OTDEL LENINGRADSKOGO NAUCHNO-ISSLED. INSTITUTA TUBERKULEZA.

UNCLASSIFIED

USSR

UDC 547.26'118

MASTRYUKOVA, T. A., BUTORINA, L. S., and KABACHNIK, M. I., Institute of Metal Organic Compounds, Academy of Sciences USSR

"Reactions of Phosphorus Monothioacids With Diazoacetone"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 2083-2084

Abstract: It was established that diazoacetone reacts with phosphorus monothioacids at room temperature in benzene solution much slower than the diazomethane, forming exclusively the thio derivatives. No effect was noted on this reaction by changing the polarity of the solvent or the substituents on the monothio acids.

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USSR

Beryllium

USSR

UDC 669.725'794-541.134

BITOROV, V. P., NICHKOV, I. F., NOVIKOV, YE. A., RASPOPIN, S. P., and
SHTOL'TS, A. K., Ural Polytechnic Institute, Department of the Metallurgy of
Rare Metals

"Thermodynamics of Beryllium-Yttrium Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya,
No 4, 1973, pp 86-89

Abstract: Tests on determining the thermodynamic magnitudes of Y-Be alloys was
reduced to a study of the electromotive force of the galvanic element which was
determined as the difference

$$\mathcal{E} = \varphi_{\text{alloy}} - \varphi_Y,$$

where φ_{alloy} and φ_Y are the equilibrium potentials of the alloy and metallic
equilibrium, respectively, relative to the chlorine electrode of comparison.
From measurements of the emf of Y-Be alloys containing from 4.1 to 40.8 wt% Y,
it was found that there is a direct relationship of alloy emf to Kelvin tempera-
ture. Tables were compiled from experimental data which showed the activity
and coefficients of activity of yttrium and Be-Y alloys and thermodynamic
1/2

USSR

BUTOROV, V. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 86-89

properties of alloy YBe_{13} . From x-ray phase analysis of the studied alloys it was established that they consist of two phases: the intermetallic compound YBe_{12} and pure beryllium. 1 figure, 3 tables, 4 bibliographic references.

2/2

- 1 -

Acc. Nr:

AP0050779

Abstracting Service:

CHEMICAL ABST. 5-70

Ref Code:
UR 0333

99210q Determination of the fat content in milk by measuring the intensity of secondary luminescence filtered by an interference light filter. Butov, G. P. (Beloruss. Sel'skokhoz. Akad. Gorki, USSR). *Moloch. Prom.* 1970, 31(1), 19-20 (Russ). To 1 ml milk were added 5 ml H₂O, 2 ml 0.04% soln. of phosphine 3R, and 2 ml 1.5% NaOH. The soln. was put into a cuvet with a thickness of 5 mm and measurements were made at 500-30 mμ. To reduce the influence of impurities in the milk an interference light filter was used. The results obtained by this method coincided satisfactorily with those given by the Gerber method. Lola Brödfeld

REEL/FRA
19810779

USSR

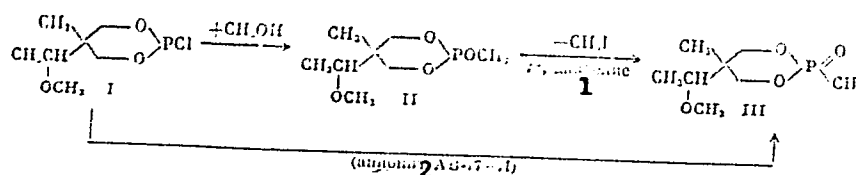
UDC 547.26'118

BOGATSKIY, A. V., BUTOVA, T. D., and KOLESNIK, A. A., Odessa State University
 ineni I. I. Mechnikov

"A New Arbuzov Rearrangement Variant"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, p 1875'

Abstract: A previous article by the authors described the conversion of cyclic phosphite II to compound III as a result of an ordinary Arbuzov rearrangement (by the action of CH_3I and II with heating and under pressure). The present article shows that compound III can be obtained directly from acid chloride I by the action of methanol in the presence of anion-exchanger AV-17-P in hydroxyl form. The reaction occurs at atmospheric pressure and at -5° , yield 70 percent.



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USSR

BOGATSKIY, A. V., et al., Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71,
p 1875

Key: 1. Pressure 2. (anion-exchanger AV-17-P)
Other type I acid halides react similarly. The study of the conversion
mechanism is continuing.

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USSR

UDC 547.87+547.26'118

BUTOVA, T. D., KOLESNIK, A. A., and BOGATSKIY, A. V., Odessa State
University imeni I. I. Mechnikov

"Alkoxy Compounds. Part 44. Synthesis of Some Alkoxyalkyl-Substituted
2-Oxo-1,3,2-dioxaphosphorinane Amides"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2009-2011

Abstract: This study was prompted by interest in the chemistry of substituted phosphoric acid amides and by the nearly complete lack of information on cyclic compounds of this type. This is the first report on the synthesis of 2-amino-2-oxo-5-alkyl-5-methoxyalkyl-1,3,2-dioxaphosphorinanes by the reaction of 2-chloro-2-oxo-5-alkyl-5-methoxyalkyl-1,3,2-dioxaphosphorinanes (alkyl radicals: methyl, ethyl and isopropyl) with diethylamine, dimethylamine, morpholine and ethylenimine. The obtained compounds are extremely unstable and readily decompose on distillation under vacuum. Their structures are supported by IR spectra showing absorption bands at 1239 cm^{-1} characteristic of the P=O bond and at 810 cm^{-1} typical of the P-N bond. The properties of the new compounds are given in tables.

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Acc. Nr:

AP0047380

Abstracting Service:
- GEOPHYSICAL ABST.

5/70

Ref. Code:

4R0065

B

1/5
12

919568. Comparison of the results of determination of the color of petroleum products on KN-51 and FEKN-56 instruments. Butrim, S. N.; Glebova, A. P.; Ivanyuk, G. E.; Musivaka, V. I.; Rostozhkin, P. A. (Volgograd Filial SKB AN, Volgograd, USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 57-8 (Russ). The precision obtained with the app. FEKN-56 was 5 times as great as that of KN-51 when detg. the color of refined oil. The relation between the results obtained with the 2 app. was expressed by the linear equation $y = 5.0 + 0.15x$, where x is the result obtained with the app. FEKN-56 and y that with the app. KN-51. The reproducibility errors for the 2 app. are tabulated. The equation is graphically presented. GGJR.

1/1

q.

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REEL/FRAME
19790906

USSR

UDC 8.74

BUTRIMENKO, A. V., GINZBURG, S. L.

"Simulation of Communication Networks on Digital Computers"

V sb. Avtomati i upr. (Automata and Control--collection of works), Moscow, Nauka, 1972, pp 77-92 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V509)

Translation: A description of a program simulating the operation of a communications network is given, and some simulation results are presented.

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USSR

UDC 577.4

BUTRIMENKO, A. V.

"Local Control of Communications Networks using the Methods of Collective Behavior of Automata"

V sb. Avtomaty, gibridn. i upravlyayushch mashiny (Automata, Hybrid and Control Machines -- collection of works), Moscow, Nauka Press, 1972, pp 72-79 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V367)

No abstract

1/1

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USSR

UDC 002.6:001.18

AVERBUKH, V. M., BUTRIMOVICH, V. V., and CHEBANOV, O. P.

"Information Activity and Questions in Forecasting"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 2: Informatsionnyye
Protsessy i Sistemy, No 8, 1971, pp 5-7

Abstract: The activity of information services in forecast compilation consists of two principal stages: viz., (1) the identification and gathering of information materials, and (2) the analytico-synthetic processing of these materials and the compilation of informative surveys of several sources and comparative surveys. The principal information sources used for survey preparation are original, survey, and analytical articles; house organs and advertising publications; descriptions of inventions for patents and author's certificates; special publications (official materials, reports on foreign assignments, and other analogous materials); conference and symposium proceedings; current-awareness and abstract publications.

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USSR

AVERBUKH, V. M., et al., Nauchno-Tekhnicheskaya Informatsiya, Seriya 2: Informatsionnyye Protsessy i Sistemy, No 8, 1971, pp 5-7

The following should be done in the information backup work for forecasting: determine the range of questions to be covered by the forecast, compile a list of the literature to be used in preparing the comparative survey; from existing sources establish the average level of results achieved by country, company, enterprise, and by subsequent study of the literature select only those facts which show a deviation from the average level of development of the given area of research; establish prospects for the production of a product or for the direction of scientific research. One of the main ways of determining such prospects is a statistical analysis of the number of publications and the number of scientists engaged in research on the investigated problem.

The survey work includes the following principal stages: analysis of company activity; statistical analysis of publications and the orientation of the creative activity of individual scientists and groups of researchers; analysis of data on achievements in related sectors of science and technology

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USSR

AVERBUKH, V. M., et al., Nauchno-Tekhnicheskaya Informatsiya, Seriya 2: Informatsionnyye Protsessy i Sistemy, No 8, 1971, pp 5-7

and the possibility of their effect on the sector under study; statistical analysis of the opinions of the most competent specialists; analysis of variations in the production volume of products (materials); study and analysis of conference and exhibit materials etc.; study and analysis of market conditions and economic ties between companies; analysis of patent and license agreements; cooperation with scientific establishments and higher educational institutions of the country.

Preliminary work on the compilation of comparative surveys includes organizing and keeping several card files; viz., a company file, author file, product file, and material file. The company file set up by the authors of the article is arranged by country, then alphabetically by company names within the country. Names of Japanese companies are transcribed into English. Each company is given a separate punch card. The information on the card includes company name in the language of the original (except for Japanese),

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USSR

AVERBUKH, V. M., et al., Nauchno-Tekhnicheskaya Informatsiya, Seriya 2: Informatsionnyye Protsessy i Sistemy, No 8, 1971, pp 5-7

address, capital, head of the company, appropriations for research and development work, branches and divisions, principal clients, economic and financial data, publications. The author file uses standard punch cards and includes biographical data (birth, education, employment record) and a list of works with coauthors and publication date. On the basis of all these card files, a comparative survey meeting the requirements of completeness of information and reliability can be compiled.

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USSR

UDC 669.71.472(688.8)

GEORGIYEVSKIY, YU. I., ZARECHNYY, V. F., BALASHOV, I. I., MANOKHA, I. YE., BUTS,
L. YA.

"Method of Varying the Pole Spacing in an Aluminum Electrolyzer"

USSR Author's Certificate No 273440, Filed 10 Jun 67, Published 21 Sep 70
(from RZh-Metallurgiya, No 4, Apr 71, Abstract No 46157P)

Translation: A procedure is proposed for varying the pole spacing in an aluminum electrolyzer by vertical displacement of the anode. In order to improve the accuracy of varying the pole spacing, after completion of the command from the control agent to shift the anode downward, a direct current is fed to the stator of the anode drive motor for instantaneous halting of the anode.

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Electromagnetic Wave Propagation

USSR

UDC 621.372.8.09:621.318

BUTS, V. A.

"Characteristics of Electromagnetic Wave Reflection from a Ferrite in an External Variable Magnetic Field"

Gor'kiy, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radiofizika, Vol XIV, No 6, 1971, pp 926-932

Abstract: A study is made of the problem of electromagnetic wave reflection from a ferrite in an external variable magnetic field. Shifting of the frequencies of the reflected and transmitted waves will occur. This phenomenon is caused by reflection of the electromagnetic waves from a moving domain wall. The movement of this wall is determined by the magnitude and frequency of the variable external magnetic field, and it is considered that the wall moves either counter to the wave or away from it, that is, the magnetic field varies only in direction but not in magnitude. Formulas are obtained for the frequency shift and also for the reflection and transmission coefficients.

The indicated characteristics of reflection of electromagnetic waves from a ferrite in a variable external magnetic field can be used for effective modulation of laser emission and to study the magnetic structure of ferrites. It
1/2

BUTS, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radiofizika, Vol XIV, No 6, 1971, pp 926-932

can also be used to generate electromagnetic waves in the required frequency range, especially when using additional deceleration and multiple reflection.

USSR

UDC: 621.319.4

BUTS, V. P., ZHELEZNOV, M. T., YURINOV, M. M.

"Vacuum Capacitors"

Vakuumnyye kondensatory (cf. English above), Leningrad, "Energiya", 1971, 134 pp, ill. 55 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V377K)

Translation: The use of vacuum as a dielectric makes it possible to produce capacitors which have a better combination of electrical and operational characteristics than air, gas-filled, mica or ceramic capacitors in a certain region of working frequencies with lower weight and overall dimensions. This book systematizes available information on vacuum capacitors. Ye. M.

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USSR

UDC: 621.317.727.1(088.8)

BUTS, V. P., SMIRNOV, E. N., TYURIN, I. P.

"A Capacitive Voltage Divider"

USSR Author's Certificate No 260022, filed 24 Jun 68, published 27 Apr 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A286 p)

Translation: The proposed design has the purpose of improving the shielding of a low-potential electrode in a high-voltage vacuum capacitor which is part of a capacitive voltage divider without reducing the electrical strength. For this purpose, the high-potential electrode is made in the form of a cylinder which surrounds the low-potential electrode, and which is flanged toward the shielding cylinder. This cylinder is equipped with a flange directed toward the high-potential electrode, the inner edge of this flange being located inside the solid angle bounded by the lower edge of the low-potential electrode and the outer edge of the flange on the high-potential electrode. E. L.

1/1

USSR

UDC: 519.217

BUTSAN, G. P.

"Some Properties of M-Operators of a Markov Process"

Teoriya veroyatnostey i mat. stat. mezhved. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1971, vyp. 4, pp 40-44 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V154)

Translation: The paper introduces the concept of an M-operator of a Markov process with values in the set G_H of all bounded operators on some Banach space H analogous to the concept of a multiplicative functional of a Markov process. By definition, the M-operator α_t satisfies the conditions: 1) $\forall x \in \Phi, \alpha_{t+s} = \alpha_t \alpha_s \pmod{P_x}$, 2) $M_x \alpha_\eta = E$, 3) $Sp M_x = (\alpha_\eta - E)(\alpha_\eta - E)^* \leq M_x \Phi_\eta$, where Φ_η is an additive nearly homogeneous nonnegative functional which satisfies the condition

$$\forall t > 0, \sup_{x \in \Phi} M_x \Phi_t < \infty.$$

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USSR

BUSTAN, G. P., Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb.,
1971, vyp. 4, pp 40-44

Conditions are given under which a_t satisfies the equation $da_t = dY_t a_t$,
where $Y_t = \int_0^t da_u a_u^{-1}$. Author's abstract.

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USSR

UDC: 519.21

BUTSAN, G. P.

"Once Again on Multiplicative Processes"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1971, vyp. 4, pp 36-39 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V210)

Translation: Properties which are true for a multiplicative process $\xi(t)$ with matrix values (see for instance RZhMat, 1970, 7V73) are proved for a multiplicative process $\xi(t)$ with operator values. The following theorem is proved: if steps with a norm exceeding $\varepsilon > 0$ are discarded from a multiplicative process, then the resultant multiplicative process will be independent of the sum or product of the discarded steps. To prove this and other facts in the general case, it was required only to show that if $\xi(t)$ is a stochastically continuous process, then so is $\xi^{-1}(t)$. Author's abstract.

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USSR

UDC 519.21

BUTSAN, G. P.

"Operator Stochastic Integrals"

Teoriya Veroyatnostey i Mat. Statist. Mezhd. Nauchn. Sb. [Theory of Probabilities and Mathematical Statistics, Interdepartmental Scientific Collection], No 2, 1970, pp 29-40 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V30 by the author).

Translation: The construction of a stochastic integral from a random numerical function $Z(t, \omega)$ with respect to the Martingale $Y(t, \omega)$, which takes on numerical values, is well known. In this work, the stochastic integral of random function $Z(t, \omega)$ is constructed with values in a certain Banach space H or G_H -- the space of all limited linear operators in H with respect to the multiplicative random set $X_s^I(\omega)$ with values in G_H . (The set X_s^I , $0 \leq s \leq t$, is called multiplicative if

$$X_s^I = X_s^I X_\tau^I, X_0^I = E, 0 \leq s < \tau \leq t).$$

Equations of the form

1/2

USSR

UDC 519.21

BUTSAN, G. P., Teoriya Veroyatnostey i Mat. Statist. Mezhd. Nauchn. Sb., No 2, 1970, pp 29-40

$$X_s^I = E + \int_0^s dY(u) X_s^u, \text{ где } Y(u) = \int_0^u dX_0^I (X_0^I)^{-1}.$$

are produced, which are satisfied in some sense by set X_s^I under certain conditions.

2/2

- 5 -

USSR

UDC 538.4

BUTSENIKS, I. E., SLYUSAREV, N. M., SHCHERBININ, E. V.

"Turbulent Pulsations in Free Boundary Layers with Even MHD Flow in a Pipe"

Riga, Magnitnaya Gidrodinamika, No 3, Jul-Sep 72, pp 135-138.

Abstract: This work presents the results of measurement of intensity of turbulent pulsations in a flow of an electrical conducting fluid under conditions such that the heterogeneity of the velocity structure occurs at the center of the flow. The components of the electrical field were measured as the fluid flowed through a square tube with two insulators and two conducting walls in a transverse magnetic field oriented diagonally across the tube. It is demonstrated that when there are free boundary layers in the flow, an increase in the magnetic field does not laminarize the flow, but rather increases the level of turbulent pulsations.

1/1

USSR

BUTSENIYEKS, I. E., SLYUSAREV, N. M., SHCHERBININ, E. V.

"MHD Turbulence in Free Boundary Layers in a Square Cube"

7-ye. Soveshch. po Magnit. Gidrodinamike. T. 1. [Seventh Conference on Magnetic Hydrodynamics, Vol 1 -- Collection of Works], Riga, Zinatnye Press, 1972, pp 37-39, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B57).

Translation: The pulsations of the electric field components e'_1 , e'_2 and e'_3 are measured as an electrically conducting fluid flows through a square tube ($29 \times 29 \text{ mm}^2$) with two nonconducting and two conducting (copper) walls in a transverse magnetic field oriented along diagonals of the tube, for $R = 17,200$ and $H = 190, 380, 520$, calculated on the basis of the half width of the channel.

1/1

USSR

UDC: 681.333.519.2

BUTSEVICHYUS, S. G., GIRDZIYAUSKAS, S. I., ZARETSKAS, V.-S. S., PAGUL'SKIS, K. M., RACHKUS-RACHKAUSKAS, A.-I. I., Kaunas Polytechnical Institute

"A Random Pulse Recorder"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 29, 1970, Soviet Patent No 281910, Class 42, filed 5 Jun 69, p 134

Abstract: This Author's Certificate introduces a random pulse recorder which contains an optical system with a device for compensating image rotation, and a medium which supports a photosensitized recording layer. As a distinguishing feature of the patent, scanning precision is improved and optical and assembly errors are reduced by incorporating a rotating penta prism into the device in the path of the image formed by the light. The stationary annular medium which supports the photosensitized film is installed concentrically with the axis of rotation of the penta prism.

1/1

AA0040651-

BLTSKIY V.N., UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

240726 ELECTROSLAG REMELTING in a syphon bottom pouring operation: the consumable electrode is inserted so that its base is clear of the bottom by one third of the slag bath depth. Voltage is applied and the molten slag syphoned into the mould, or else imported via a tundish and orifice in the bottom of the mould. The slag rises and makes the circuit. The idea is to raise the slag sharply and thus avoid any skull or crusting on the mould bottom or walls. Once the slag reaches project height, syphoning stops and remelting proceeds normally.

5.3.66 as 1060334/22-2. PATON.B.E.et al.E.O.PATON
ELECTROWELDING INST. (26.8.69) Bul 13/1.4.69.
Class 18b. Int.Cl.C 21 c.

19750234

AA0040651

AUTHORS: Paton, B. Ye.; Medovar, B. I.; Latash, Yu. V.; Dudko, D. A.;
Yemel'yanenko, Yu. G.; Klyuyev, M. M.; Pryanishnikov, I. S.;
Laktionov, V. S.; Butskiy, V. N.; and Kosyrev, L. K.

Ordена Trudovogo Krasnogo Znameni Institut Elektrosvarki
imeni E. O. Patona

19750235

USSR

UDC 621.383.8

BUTSLOV, M. M., Doctor of Sciences, GORNOSTAYEV, V. A., KARAPETYAN, B. O.,
MARKOV, A. A., Doctor of Sciences, SMOLKIN, G. Ye., Doctor of Sciences, and
SOFTYEV, G. N., Candidate of Sciences

"Electron-Optical Pulse Apparatus for Astronomical Investigations"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 10, Oct 72, pp 54-56

Abstract: A study is made of the problems to develop an installation for the investigation of astronomical objects with transitional radiation on the basis of pulsed cascade image converter tubes. This installation must be applicable for the solution of a large circle of astronomical problems requiring short-term exposures. The demands made to the principal parameters of a similar installation are indicated. The installation and the generator of frame scanings (GFS) and shutter pulses are described by reference to the flow chart and the functional diagram. The results of testing the GFS by making use of a PIM-3 type converter are presented in form of frequency-contrast characteristics. The latter give an idea of the contrast transfer in the whole range of frequencies. Four illustr., six biblio. refs.

1/1

- 189 -

USSR

UDC: 661.143.099

TVERDOKHLEV, I. G., BUTSLOV, M. M., MIKHALEV, A. A., BOZHI-BAYLOVA, G. N.

"Pressing Phosphors as a Method of Making X-Ray Phosphor Screens"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv
(Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Substances),
1971, vyp. 6, pp 71-81 (from RZh-Khimiya, No 15, Aug 72,
Abstract No 15L188)

Translation: The paper demonstrates the feasibility of improving the characteristics of x-ray phosphor screens through an increase in the packing density of phosphor grains by the method of pressing followed by high-temperature treatment to restore the intensity of x-ray luminescence (sulfide and rare earth phosphors) or without heating (tungstates, sulfates). Bibliography of five titles.

1/1

BUTSLOV, M. M.

ACADEMY OF SCIENCES OF THE USSR
P. N. LUBCHENKO and M. P. NOZD

Preprint E 82

DIRECT FINANCING BY THE GOVERNMENT OF A

FILE-LOCKED ENIGMAS LONGER RESIST

E.G. Pashov, E.M. Pashov, P.G. Pashov, Yu.A. Kharitonov,
E.I. Enikimova, S.D. Fanchenko, R.V. Chetulin, E.V. Chukin

Presented at the Conference on Nonlinear

Optics, Kinok, 27 June - 1 July, 1972

7-11836
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Всего 1-202, Заключенный документ, 53

WISCONSIN, 1967, 2372

DIRECT BACKGROUND SUBTRACTION TECHNIQUE OF A LOCKED-ON
Nd: GLASS LASER RADIATION

N.G. Pechay ^{*)}, A.G. Kozlov ^{**)}, P.O. Krivov ^{*)},
Ya.A. Matveeva ^{*)}, E.A. Gritskova ^{***)}, G.D. Varchenko ^{***)},
S.V. Chikhalin ^{*)}, A.V. Chikhalin ^{***)}

INTRODUCTION

Presently the ultra-locked Nd-glass lasers are the subject of extensive research efforts aimed at the determination of their radiation shape and duration. As the expected single pulse duration is $\leq 10^{-10}$ sec, all the conventional spectroscopic techniques (ultra-band oscilloscopes with coaxial photodiodes, ordinary image converter streak cameras) fail to provide detailed information on the radiation pulse shape.

There are some indirect methods (Ref. 1-3) for evaluating the duration of the laser ultra-short pulses (LSP). Unfortunately, these methods based upon the measurement of second and higher-order correlation functions are unable to give unambiguous results unless some assumptions are made concerning

^{*)} P.N. Lobachev Physical Institute of the Academy of Sciences of the USSR

^{**)} All-Union Research Institute of Optical-Physical Measurements

^{***)} V.V. Vavilov Institute of Atomic Energy

B Veterinary Medicine

USSR

UDC: 619:611-018.46-614.9-084.47-636.4

BUTS'YANOW, D.D., KARPUS; I.M.

"Immunomorphological Changes in Bone Marrow in Combined and Individual Vaccinations of Pigs Against Swine Fever and Erysipelas"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Sel'skokhozyaystvennykh nauk, No 2, 1970, pp 117-120

Abstract: A group of 3-month-old pigs was vaccinated against swine fever, another group against erysipelas, and the third group against both diseases. This process was repeated 14 days later. Examination of bone marrow 4, 8, and 20 days after the first vaccination, and 30 days after revaccination showed marked activation of myelopoiesis and of the reticulo-endothelial system, which was increased after the second vaccination. There was a marked increase of plasmatic cells after the second erysipelas vaccination. The increase in reticular cells and lymphocytes was more marked after administration of swine fever vaccine. Together with the proliferation of myeloblastic and lymphoid-reticular elements and plasma cells, an increase in the amount of RNA was noted. Gamma-globulin levels in the peripheral blood were also elevated. In cases of combined vaccination against swine fever and erysipelas, anti-erysipelas agglutinins were noted.

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--USE OF DIFFERENTIAL THERMAL ANALYSIS TO STUDY THE DISTURBANCE OF A
QUARTZ CRYSTAL LATTICE DURING PULVERIZATION -U-
AUTHOR-(03)-BUTT, YU.M., VOROBYEVA, M.A., MAMONTOV, V.N.
COUNTRY OF INFO--USSR **B**
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 228-30
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS
TOPIC TAGS--CRYSTAL LATTICE, MATERIAL CRUSHING, COMMINUTION, QUARTZ
CRYSTAL, METAL BALL, GRINDING MACHINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1048 STEP NO--UR/0063/70/015/002/0228/0230
CIRC ACCESSION NO--AP0138070
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138070

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOGRAMS ARE REPORTED FOR POWD. QUARTZ WITH ADMIXTS. OF POWD. FE AFTER VARIOUS MODES OF PULVERIZATION IN VARIOUS MILLS. THE THERMOGRAPHIC METHOD WAS ABLE TO DETECT THE DISTURBANCES IN CRYSTAL LATTICE OF QUARTZ IN SUCH SYSTEMS CAUSED BY MECH. DEFORMATION IN MILLING. THE LARGEST DEFORMATIONS WERE FOUND AFTER TREATMENT IN A VIBRATORY OR BALL MILL, THE MATERIAL ATTAINING A SP. SURFACE OF SIMILAR TO 3000 CM PRIME2 -G. FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PRINCIPLES OF THE FORMATION OF CRYSTALS AND CRYSTALLINE CONCRETIONS
OF CALCIUM HYDROXIDE IN SETTING CEMENT STONE -U-
AUTHOR-(05)-BUTT, YU.M., TIMASHEV, V.V., BAKSHUTOV, V.S., ILYUKHIN, V.V.,
GOLOVACHEV, V.P.
COUNTRY OF INFO--USSR
SOURCE--TSEMENT 1970, (2), 20-2
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--X RAY DIFFRACTION, CRYSTALLIZATION, CALCIUM COMPOUND, CEMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0894 STEP NO--UR/0101/70/000/002/0020/0022
CIRC ACCESSION NO--AP0137922
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137922

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VISUAL, X RAY DIFFRACTION, AND ELECTRONOGRAPHIC STUDY OF CRYSTALS AND CRYST. CONCRETIONS OF PORTLANDITE CO(OH) SUB2 (I) , FORMED AND GROWING UNDER DIFFERENT CONDITIONS: SATD. SOLNS. CACL SUB2 AND KOH , HYDRATATION OF TRI,CA SILICATE , AND CEMENTS IN EXCESS OF WATER OR IN USUAL D. OF CEMENT PASTE, IS GIVEN. I CRYSTALLIZES IN THE FORM OF COLORLESS HEXAGONAL TABLETTES OF PRISM AND BELONGS TO THE SPACE GROUP C3ML , A EQUALS B EQUALS 3.60, C EQUALS 5.0 ANGSTROM, INTERAT. DISTANCES $\text{CA,O 1.14, O,H 0.79, H,H 1.03 ANGSTROM}$. THE CONCRETIONS ORIGINATE IN THE PERIOD OF SUPERSATD. COMPN. OF SOLN. OWING TO SIMULTANEOUS GROWTH OF CRYSTALS FROM ONE POINT OR EDGE. THE SIZE OF CRYSTALS FORMING THE CONCRETIONS IS NOT HIGHER THAN THE SIZE OF CRIT. CRYSTG. NUCLEUS (10 PRIME NEGATIVE6-10 PRIME NEGATIVE5 CM); BY FURTHER INCREASE OF THE CRYSTAL SIZE, THE PROBABILITY OF FORMATION OF THE CONCRETIONS DECREASES. FACILITY: MKHTI IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 539.163.546.657

~~BUTSEV~~, V. S., VYLOV, Ts., GROMOV, K. Ya., KALINNIKOV, V. G., Joint Institute of Nuclear Research

"Investigation of the Decay of Neodymium and Praseodymium Nuclides With Mass Number $A = 136$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1581-1589

Abstract: The paper investigates the chain decay $^{136}\text{Nd} \rightarrow ^{136}\text{Pr} \rightarrow ^{136}\text{Ce}$. About 100 new γ -transitions are observed in the decay of ^{136}Nd and ^{136}Pr . Types of multipole orders are determined for a number of these transitions. A decay scheme is proposed for the first time for ^{136}Nd (55.0 ± 1.5 min), and a considerable augmentation is made to the decay scheme of ^{136}Pr (12.9 ± 0.4 min). The authors thank V. P. Afanas'yev, I. I. Gromova, N. A. Lebedev, E. Kherrmann, Kh Tyrroff, A. A. Aleksandrov, V. M. Mosyazh, Ya. Polakhova, V. Bonova, and M. Nenova for considerable interest in the work.

1/1

USSR

UDC: None

ALEKSANDROV, V. S., BUTTSEV, V. S., VYLOV, Ts., GROMOV, K. Ya.,
and KALINNIKOV, V. G.

"Determining the Energy of the $^{134}\text{Ce} \rightarrow ^{134}\text{La}$ and $^{160}\text{Er} \rightarrow ^{160}\text{Ho}$
Decays"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 5,
1973, pp 948-952

Abstract: Using experimental and theoretical data from earlier papers, the authors of the present article determine the energy arising from the decay of $^{134}\text{Ce} \rightarrow ^{134}\text{La}$ and $^{160}\text{Er} \rightarrow ^{160}\text{Ho}$. The method of the determination is illustrated by the example of the latter decay, where the formula for the number of x-ray quanta of the K series for Ho per 100 decays of ^{160}Er during a specified time interval and the formula for the number of x-ray quanta of the K series for Dy per 100 δ decays of ^{160}Ho over the same time interval, are used. The experiments through which the data were obtained are briefly described, and diagrams illustrating the systems of the decays are given. Plots of the x-ray radiation spectra for both
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USSR

ALEKSANDROV, V. S., et al., Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 5, 1973, pp 948-952

types of decay are also given. The authors thank N. A. Lebedev, V. P. Afanas'yev and I. I. Gromov for preparing the specimens used in the experiments, and Ye. P. Grigor'yev for his interest in the work. It is noted that the method here given is practically unique for this type of decay chain.

2/2

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USSR

UDC: 539.163.546.656

BUTTSEV, V. S., GROMOV, K. Ya., and KALINNIKOV, V. G.

"Quasi-Proton Excitation States in the Magic ^{141}Pr Nucleus"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 5, 1973, pp 1024-1034

Abstract: There has been a great deal of interest in the characteristics of magic nuclei in which $N = 82$ and $Z > 50$ as a result of attempts to describe the characteristics of lower states in this nuclear area in the quasi-particle approximation for protons beyond the filled core. This paper gives the results of exhaustive research into the excitation quasi-neutron states in the ^{141}Pr nucleus, and the gamma radiation spectra, conversion electrons, and gamma-gamma coincidences of ^{141}Nd . This last isotope was obtained through the fission of Gd by fast protons in a two-hour irradiation on the OIYaI (Joint Institute of Nuclear Research) synchrocyclotron. A table of information on the gamma transitions of ^{141}Pr is given together with diagrams illustrating the decay of ^{141}Nd and the excitation spectra of ^{141}Pr . The authors thank V. P. Afanas'yev, I. I. Gromova, N. A. Lebedev, Ts. Vylov, the measurement center team of the Laboratory of Nuclear Problems in the OIYaI, the

1/2

USSR

BUTTSEV, V. S., et al., Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya,
No 5, 1973, pp 1024-1034

operators of the SDS-1604A computer, graduate student N. A. Tikhonov of the
Leningrad State University, LSU students A. Aleksandrov and V. Mosyazh, as
well as Ya. Polakhova, V. Bonova, and M. Nenova for their assistance with the
experiments.

2/2

- 43 -

1/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ANALYSIS OF THE BATHMOTROPIC EFFECT OF PROMETHAZINE, DIPRASINE AND
BENEDRYL, DIMEDROL -U-
AUTHOR-(02)-GUBAREV, YE.A., BUTTSEVA, T.A. *B*
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 35-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FRUG, MYOCARDIUM, CHOLINERGIC, ADRENERGIC DRUG, HEART,
ANTI-HISTAMINIC DRUG
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1696 STEP NO--UR/0390/70/033/001/0035/0037
CIRC ACCESSION NO--AP0103462
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0103462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIPRASINE AND DIMEDROL
ADMINISTERED S.C. AT 5, 10, AND 25 MG PER KG TO FROGS INCREASED THE
EXCITABILITY THRESHOLD OF THE MYOCARDIUM TO ELEC. STIMULI IN SITU. THE
EFFECT OF THESE COMPS. WAS BY ACTION ON BOTH THE ADRENERGIC AND
CHOLINERGIC INNERVATION OF THE HEART AND ON THE NEUROMUSCULAR STRUCTURES
OF THE MYOCARDIUM. FACILITY: KURSK. MED. INST., KURSK, USSR.

UNCLASSIFIED

USSR

UDC 612.743.014.45

BUTUKHANOV, V. V., and SUVOROV, G. A., Leningrad Sanitary-Hygiene Medical
Institute

"Bioelectrical Responses of Skeletal Muscles to Steady and Pulsed Noise"

Moscow, Gigiyena i Sanitariya, No 10, 1971, pp 21-25

Abstract: Thirty rabbits were exposed to three hours of steady or pulsed (periodic and aperiodic) noise in a soundproof chamber and action potentials were derived from electrodes implanted in the masseter, trapezius, longissimus dorsi, rectus abdominis, tibialis interior, and gastrocnemius. Analysis of 1080 electromyograms recorded in 60 experiments showed that both types of noise had a marked effect on the animals' motor system. Both caused perceptible trace changes on the EMG, but the pulsed noise resulted in more pronounced shifts in the bioelectrical activity of the skeletal muscles. Immediately after the cessation of noise, the EMG was generally characterized by the absence of action potential with only occasional high-voltage activity. Later, oscillations of bioelectrical activity reached significant proportions. During the first hour after exposure to the pulsed noise, the EMG showed volleys of high-voltage oscillations along with a uniform increase in intensity of the muscle potentials.

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USSR

UDC 612.741

BUTUKHANOV, V. V., Department of Normal Physiology, Sanitary-Hygienic Medical
Institute, Leningrad

"Reflex Bioelectrical Response of Skeletal Muscles to Pulsed Noise"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, No 4, 1971,
pp 566-575

Abstract: Pulsed noise (30 per sec; 80, 90, and 100 db) brought about distinct changes in the bioelectrical activity of rabbit skeletal muscles. It increased the frequency and amplitude of the action potentials after a latent period. The maximum response of all the muscles studied (masseter, biceps, triceps, latissimus dorsi, rectus abdominis, trapezius, tibialis, gastrocnemius) was recorded after 5 sec of stimulation regardless of the noise intensity. Further stimulation resulted in slow extinction of electrical activity. Noise at an intensity of 90 db elicited the strongest reaction from the masseter, trapezius, and rectus abdominis, while the muscles of the extremities responded most strongly to noise at an intensity of 100 db. The length of the latent period was inversely proportional to the intensity of the stimulus. For example, after noise at 80 db the latent period of the response of muscles innervated from the spinal cord was almost twice as long as after noise at 100 db.

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USSR

UDC 621.315.592:546.28

SLOTIN, V.V., BUTURLIN, A.I., DUVANOV, G.V., CHISTYAKOV, YU.D.

"On The Possibility Of Control Of The Composition Of A Vapor-Gas Mixture In The Chloride Process Of Preparing Autoepitaxial Layers Of Silicon By The Method Of Piezoquartz Microweighing With A Sorbing Layer"

Sb. nauch.tr. po probl.mikroelektron. Mosk. in-t elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 184-192 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 72, Abstract No 9B78)

Translation: The paper considers a statement of the problem of automatization of the control of the composition of a vapor-gas mixture in the chloride process of preparing autoepitaxial layers of Si. Requirements are formulated for methods of control which make it possible to automatize the measurement process. An analysis is made of the possibilities of a method of piezoquartz microweighing with a sorbing layer and the prospects for its use for continuous control of the composition of vapor-gas mixtures are shown. 16 ref. Summary.

1/1

- 119 -

USSR

UDC 621.315.592:546.88

SLOTIN, V.V., BUTURLIN, A.I., DUVANOV, G.V., CHISTYAKOV, YU.D.

"Thermodynamic Analysis Of Hydrolysis Reaction Of Silicon Tetrachloride Vapors"

Sb.nauch.tr. po probl.mikroelektron. Mosk. in-ta elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics). Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 193-199 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B81)

Translation: A thermodynamic analysis is made of the hydrolysis reaction of SiCl_4 . The temperature is determined for preparation of silica gel type products ($\sim 60^\circ \text{C}$). The role is considered of the hydrolysis reaction of SiCl_4 vapors in a chloride process for preparation of autoepitaxial layers of Si. 4 ref.

Summary.

1/1

B
USSR

UDC: 539.3:534.231.1

BUTUROVICH, I., KHAN, Dyk Kim

"Calculation of Curvilinear Concentrators"

Tr. Leningr. politekhn. in-ta (Works of the Leningrad Polytechnical Institute),
1969, No 309, pp 169-174 (from RZh-Mekhanika, No 2, Feb 70, Abstract No 2V319)

Translation: The authors consider high-frequency longitudinal oscillations of a
curvilinear rod of variable cross section. The theoretical values found for the
frequency and amplification factor are compared with experimental data. It is
found that the results coincide completely. V. I. Feodos'yev.

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1/1

BUTUSOV, A.A.

SPRS 56.499
14 JULY 72

6

SOME RESULTS OF USING DISPERSION ANALYSIS FOR EVALUATING THE
PHYSIOLOGIC REACTIONS OF COSMONAUTS DURING FLIGHT OF THE
SOYUZ-3, SOYUZ-4 AND SOYUZ-5 SPACESHIPS

Article by V. I. Antonova, A. A. Butusov, V. A. Derzhavskiy,
A. D. Yegorov, N. A. Ivanova, G. G. Ivanova, A. B. Ilyin,
A. P. Polyakov and L. H. Solov'yev. Moscow, 1971. 11 p.
Voprosy Kosmicheskoy Biologii i Meditsiny (Current Problems in
Space Biology and Medicine), Russian, 1971, pp 9-11.

During the space flight of the "Soyuz-3," "Soyuz-4,"
and "Soyuz-5" ships, radiotelemetric systems were used in re-
cording such physiologic parameters as the electrocardiogram
(ECG), splanchnicogram (SCG) and pneumogram (PG). In process-
ing this information it was possible to determine the frequen-
cy of cardiac contractions and the respiration rate and the
principal ECG and SCG indices for each cosmonaut were measured.

The collected data were grouped in accordance with the
stages in training and conducting space flight. The follow-
ing periods were discriminated:

preflight (PF) period, including data obtained in ex-
amination of crews during ordinary work activity 15-20 days
prior to the flight;

prelaunching, including the results obtained during
the registry of physiologic parameters several hours prior to
the launching (P-1) and during the periods of the five-on-
minute countdown (P-2);

active segment (AS), the segment in which the space-
ship is put into orbit;

orbital flight (OF);

descent segment (D).

BUTUSOV, A. A.

SPRS 56,499
14 JULY 72

3

QUANTITATIVE EVALUATION OF PHYSIOLOGIC INDICES OF COSMONAUTS
DURING FLIGHT OF THE 'SOYUZ-6' - 'SOYUZ-8' SPACESHIPS

Article by I. V. Ambienko, A. A. Butusov, V. A. Dvorzhanov-
skaya, A. L. Ioforov, N. A. Ivanikhina, V. G. Kiselev, V. H.
Lemkin, A. P. Polynkova and I. B. Sviridov; Moscow, Akademi-
ya Voprosy Kosmicheskoy Biologii i Meditsiny (Current Prob-
lems in Space Biology and Medicine), Russian, 1971, pp 7-9/

In conducting medical monitoring an evaluation of the
health of cosmonauts during spaceflight is made on the basis
of information received during radio conversations and tele-
vision contacts, by an analysis of the registered physiologic
parameters and the microclimatic parameters in the manned com-
partments, by conducting medical self- and mutual monitoring,
etc. (Ye. I. Vorob'ev, et al., 1969; 1970).

In the process of decoding the physiologic parameters
the frequency of cardiac contractions and the respiration rate
were ascertained and the principal indices of the electro-
cardiogram and selenocardiogram were measured.

The principal objectives of the quantitative evalua-
tion and the statistical analysis of physiologic data were:

evaluating the significance of the influence of dif-
ferent flight factors on physiologic indices;

determining the direction of change of physiologic
indices during different flight periods for different cosmo-
nauts;

evaluating the dynamics of the mean values of the
physiologic indices during different flight periods and the
individual characteristics of the reactions of cosmonauts;

BUTUSOV, A. A.

SPRS 56,499
14 JULY 72

23

PHYSIOLOGIC REACTIONS OF COSMONAUTS REGISTERED DURING
FLIGHT OF THE "SOYUZ-9" SPACECRAFT

(Article by A. A. Butusov, A. B. Yegorov, V. R. Lyamin, A. P. Polyakova and I. H. Syztunov, Moscow, Akademiya Voprosy Kosmicheskoy Biologii i Meditsiny (Current Problems in Space Biology and Medicine), Russian, 1971, pp 38-39)

"The principal peculiarities of flight of the "Soyuz-9" spaceship were its short duration (18 days) and saturation of the flight program with different kinds of scientific investigations. In this connection it is of great interest to consider data on the physiologic reactions of the crew members during prolonged exposure to spaceflight factors.

In addition to the earlier described sources of information on the health of those cosmonauts (i.e., V. V. Vozdvyak, et al., 1969, 1970; Yu. G. Medvedev, et al., 1970), the results of the circulatory apparatus to a special functional test with a carefully measured standard physical load were registered during this flight. In addition, an important place was given to medical self- and mutual monitoring which the cosmonauts carried out aboard the ship during the flight.

As on the earlier manned flights, in the crew members of the "Soyuz-9" ship the frequency of cardiac contractions after the ship had been put into orbit exhibited a well-expressed tendency to a decrease and already in the third-sixth revolutions attained mean values characteristic of the pre-flight period (70-75 beats per minute). Later this index for both cosmonauts persisted at lower levels, but during the last third of the flight had no statistically reliable difference from the data for one day prior to the flight. During the performance of dynamic operations (spinning, ship orientation, orbital corrections, etc.), as well as physical exercises and some experiments, in a number of cases there was a

USSR

UDC: 536.24:536.42

BUTUZOV, A. I., FAYNZIL'BERG, S. N., BEZRODNYI, M. K., USENKO, V. I., KUDEL'YA, P. P.

"On the Problem of Studying Heat Exchange During Boiling of Liquids Under Inertial Loading Conditions"

Teplofiz. i teplotekhnika. Resp. mezhved. sb. (Thermal Physics and Heat Engineering. Republic Interdepartmental Collection), 1970, Vol 16, pp 137-140 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B869)

Translation: Experiments are conducted on determining the laws of heat exchange which accompany boiling of freon-12 and water on heating surfaces with thermal loads $q = (6.6-200) \text{ kW/m}^2$, and with inertial overloads $a/g = 1-5250$. Three typical heat exchange regions are distinguished: well developed boiling when $q > q_{fc} + q_{ub}$, undeveloped boiling -- $q_{fc} < q < q_{ub}$, and a heat exchange region with free convection -- $q < q_{fc}$. The thermal loads q_{fc} and q_{ub} are given in the form of power functions of the inertial overloads and the kind of liquid. In addition, q_{fc} depends on the thickness of the liquid layer on the heat exchange surface. For the heat exchange region with free convection, the authors recommend the usual form of dimensionless relationship with substitution of inertial acceleration a for acceleration due to

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USSR

BUTUZOV, A. I., et al, Teplofiz. i teplotekhnika. Resp. mezhved. sb., 1970, Vol 16, pp 137-140 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B869)

gravity g . In the region of well developed boiling, the conventional form of relationship between the coefficient of heat exchange α and heat flux $q_b = q - q_{fc}$. The effect of inertial overloading is accounted for in the parameter q_{fc} . In the region of undeveloped boiling, they propose a relationship of the form $\alpha = cq_k^n (a/g)^m$, where c , m and n are constants. The results of the experiments agree with the data of McAdams, Mert and Clark. A description is given of the construction of an installation with closed circulation of the cooling agent in the rotor sections of a model; this installation can be used to conduct experiments at heat fluxes of up to 10 MW/m^2 . Yu. Ye. Pokhvalov.

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Acc. Nr.: A70046706

Ref. Code: 4B0146

USSR

UDC 681.128.5

BUTUZOV, A.I., BEZRODNYI, M.K., FAYNZIL' BERG, S.N.,
KUDELYA, P.P., USENKO, V.I.

"Thermistor Compensated Quantity Gage"

Termorezistornyy kompensirovanny urovnemer (cf. English
above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy,
Priborostroyeniye, 1970, No 1, pp 123-126

Translation:

The design is considered of a thermistor quantity
gage with compensation for the errors associated with the
variation of the parameters of the ambient medium.

Reel/Frame
19790009

57 21

USSR

UDC 621.762.5:669.29:669.018.4:620.18

KISLYY, P. S., SHVAB, S. A., GAYEVSKAYA, L. A., NESCHETNYI, V. A., and BUTUZOV, S. S., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Structure and Properties of Titanium Diboride With 20% Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No 9, Sep 73, pp 35-38

Abstract: Samples of titanium diboride powder with 20% titanium carbide (particle size of initial powder = 1 micron) with a porosity of almost 32% were sintered in a graphite resistance furnace in hydrogen at 2000-2300°C for 0 to 180 minutes. After a specified soaking time at a given temperature the samples were cooled, and grain size, bend strength, porosity and electric resistance were determined. It was found that grain size increases with sintering time (the higher the temperature the larger the grain size). Bend strength increases with sintering time up to a point (around 40 minutes) and then starts declining. The highest bend strength value is achieved for a sintering temperature of 2300°C but after the 40-minute mark it diminishes more quickly than a sample sintered at 2200°C. Porosity curves were the opposite of the bend strength curves with porosity dropping during the first 40 minutes and then increasing. Electrical resistance curves followed the same pattern

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USSR

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KISLYY, P. S., et al., Poroshkovaya Metallurgiya, No 9, Sep 73, pp 35-38

as the porosity curves although samples sintered at 2300°C reach a low value after 40 minutes of sintering and this value remains constant for the subsequent sintering time. The conclusion was reached that titanium diboride samples with 20% titanium carbide possess the best qualities after sintering at 2200-2250°C for 40 minutes. 6 figures, 1 table, 3 bibliographic references.

2/2

1/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ON THE ROLE OF DESCENDING INHIBITION IN THE INHIBITING EFFECT OF
CATECHOLAMINES ON SYMPATHETIC TONUS AND VASOMOTOR REFLEXES -U-
AUTHOR--BUTUZOV, V.G.
COUNTRY OF INFO--USSR
SOURCE--BYULLETIN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR
3, PP 65-69
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INHIBITION, CATECHOLAMINE, NORADRENALINE, ADRENALINE, SPINAL
CORD, REFLEX, SYMPATHETIC NERVOUS SYSTEM, HEART, KIDNEY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1982/0843 STEP NO--UR/0219/70/069/003/0065/0069
CIRC ACCESSION NO--AP0052277
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0052277

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INHIBITING EFFECT OF CATECHOLAMINES (NORADRENALINE AND ADRENALINE INJECTED IN DOSES OF 200 TO 300 MU INTO THE LATERAL AND IV VENTRICULI AND THE EPIDURAL SPACE OF THE SPINAL CHORD) AND DOPA (40 MG-KG INJECTED INTRAVENOUSLY) ON THE TONIC ACTIVITY AND REFLEX DISCHARGES IN THE SYMPATHETIC NERVES OF THE HEART AND KIDNEYS AND ON THE MAGNITUDE OF PRESSOR REFLEXES WAS STUDIED IN EXPERIMENTS WITH REGISTRATION OF BIOPOTENTIALS IN SYMPATHETIC NERVES. IT WAS DEMONSTRATED THAT THE INHIBITING EFFECT OF CATECHOLAMINES AND DOPA INCREASED CONSIDERABLY AFTER DECEREBRATION AND DIDN'T MANIFEST ITSELF IN SPINAL ANIMALS WHEREAS NORADRENALINE, AN INJECTION INTO THE REGION OF THE NUCLEUS GIGANTOCELLULARIS, INCREASED THE EXCITABILITY OF THE VENTROMEDIAL RETICULAR FORMATION. ON THE BASIS OF THESE DATA THE AUTHORS SUPPOSE THAT CATECHOLAMINES ARE ABLE TO ACTIVATE PROCESSES OF RETICULO SPINAL INHIBITION, THEREBY TAKING PART IN THE DESCENDING CONTROL OF THE SYMPATHETIC AND VASOMOTOR TONUS.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ON THE ROLE OF DESCENDING INHIBITION IN THE INHIBITING EFFECT OF
CATECHOLAMINES ON SYMPATHETIC TONUS AND VASOMOTOR REFLEXES -U-
AUTHOR--BUTUZOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--BYULLETIN EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR
3, PP 65-69
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INHIBITION, CATECHOLAMINE, NORADRENALINE, ADRENALINE, SPINAL
CORD, REFLEX, SYMPATHETIC NERVOUS SYSTEM, HEART, KIDNEY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1932/0843

STEP NO--UR/0219/70/059/003/0065/0069

CIRC ACCESSION NO--AP0052277

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0052277

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE INHIBITING EFFECT OF CATECHOLAMINES (NORADRENALINE AND ADRENALINE INJECTED IN DOSES OF 200 TO 300 MU INTO THE LATERAL AND IV VENTRICULI AND THE EPIDURAL SPACE OF THE SPINAL CHORD) AND DOPA (40 MG-KG INJECTED INTRAVENOUSLY) ON THE TONIC ACTIVITY AND REFLEX DISCHARGES IN THE SYMPATHETIC NERVES OF THE HEART AND KIDNEYS AND ON THE MAGNITUDE OF PRESSOR REFLEXES WAS STUDIED IN EXPERIMENTS WITH REGISTRATION OF BIOPOTENTIALS IN SYMPATHETIC NERVES. IT WAS DEMONSTRATED THAT THE INHIBITING EFFECT OF CATECHOLAMINES AND DOPA INCREASED CONSIDERABLY AFTER DECEREBRATION AND DIDN'T MANIFEST ITSELF IN SPINAL ANIMALS WHEREAS NORADRENALINE, AN INJECTION INTO THE REGION OF THE NUCLEUS GIGANTOCELLULARIS, INCREASED THE EXCITABILITY OF THE VENTROMEDIAL RETICULAR FORMATION. ON THE BASIS OF THESE DATA THE AUTHORS SUPPOSE THAT CATECHOLAMINES ARE ABLE TO ACTIVATE PROCESSES OF RETICULO SPINAL INHIBITION, THEREBY TAKING PART IN THE DESCENDING CONTROL OF THE SYMPATHETIC AND VASOMOTOR TONUS.

UNCLASSIFIED

USSR

UDC 546.26-126+549.07+549.211

BEZRUKOV, G. N., BUTUZOV, V. P., LAPTEV, V. A., All-Union Scientific Research Institute for the Synthesis of Mineral Raw Materials, Aleksandrov, Vladimirskaya Oblast

"The Growth Kinetics of Artificial Diamond Crystals of Different Habitus Types"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1088-1091

Abstract: In research on the growth kinetics of artificial diamond crystals of different habitus types, the following conclusions were obtained. The thermodynamic conditions of crystallization, and particularly the temperature regimes, determine the predominant development of diamond crystals of a strictly defined habitus. The number of crystallization centers is also a function of the thermodynamic conditions, the determining parameter being pressure. The duration of crystallization substantially affects the rate of origination of diamond crystallization centers, which then form various habitus types, only during the first 120 seconds. Subsequently, during the investigated time interval, the rate of origination of the centers is practically constant. The rate of crystal growth of all the habitus types de-

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BEZRUKOV, G. N. et al, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1088-1091

pends essentially upon duration of the synthesis also only in the first stage (up to 30 seconds). In the course of time this relationship is relaxed, expressing a very smooth decrease of the growth rates. 4 figures, 1 reference.

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USSR

UDC 546.26-126+549.07:549.211

BEZRUKOV, G. N., BUTUZOV, V. P., and LAPTEV, V. A., All-Union Scientific Research Institute of Mineral Raw Material Synthesis, Aleksandrov Vladimirovskoy Oblast

"Growth Kinetics of Synthetic Diamond Crystals of Differing Habit Types"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

Abstract: A study was made of the pressure and temperature relationships in the growing of diamond crystals from which five morphological habit types were distinguished: I -- cubes, II -- cubes with truncated faces of an octahedron, III -- an intermediate form between a cube and octahedron -- a cubic octahedron, IV -- an octahedron with truncated cube faces and V -- octahedron. By experimentation it was established that nucleation of crystals occurs for the entire crystallization time interval, and that high temperatures and pressures facilitate the formation of twins and concretions the formation of which occurred at increased growth rates.

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USSR

BEZRUKOV, G. N., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

At the minimum possible temperature for a given pressure type II crystals are formed in most cases with some formation of type I habits. A prevalent formation of type III crystals occurs at comparatively high parameters. Habit types IV and V form at even higher temperatures. By plotting the number of crystallization centers against temperature m , $m+110^{\circ}$, $m+220^{\circ}$ and $m+310^{\circ}$ C and number of centers against pressures n , $n+3$, and $n+6$ kbars the authors were able to determine the maximum number of crystallization centers formed for each crystal habit type before a smooth drop starts. For habit types III, two centers of crystallization form four at $m+110^{\circ}$; one crystallization center for habit type IV forms a maximum of two centers at $m+220^{\circ}$; and for one crystallization center for type V there are about four centers formed. On the other hand if a multitude of crystallization centers initially form then the maximum number of centers resulting increases quite rapidly. For example, 28 crystallization centers of type V formed approximately 266 centers at $m+220^{\circ}$. The data mentioned here for the high number of crystallization centers formed was for a pressure of $n+6$ kbars. The same evidence was observed for increasing pressure while holding temperature constant, with extreme being noted for high temperatures and high pressures.

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USSR

BEZRUKOV, G. N., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1088-1091

In plotting growth rate against time it was noted that maximum growth rate occurs at the 15 second mark for a pressure of ± 3 kbars and temperature of ± 110 C (excluding type I). The maximum growth rates were (in mm/sec): 0.06 for type III, 0.052 for IV, 0.042 for type V and 0.03 for type II.

From this experiment the authors made the following conclusions: 1) thermodynamic conditions of crystallization and especially temperature modes determine the prevalent development of diamond crystals of a strictly specified habit; 2) the number of crystallization centers is a function of the thermodynamic conditions whereupon the determining factor is pressure; 3) duration of crystallization time renders a substantial effect on the rate of crystallization center formation which then forms different habit types only in the course of the first 120 seconds. Furthermore, in the course of the investigated time interval the rate of center formation is practically unchanged; 4) growth rate of crystals of all the habit types also depends essentially on the synthesis time only in the first stage (up to 30 seconds). With the passage of time this relationship deteriorates, reflecting a very smooth decrease in growth rates. Four figures, 1 bibliographical reference.

3/3

172 031 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--RADIATION CATALYTIC ACTIVITY OF DIAMOND AND GRAPHITE -U-
AUTHOR--(05)-VLADIMIROVA, V.I., ZHABROVA, G.M., KADENATSI, B.M.,
KRIVENKOVA, P.G., BUTUZOV, V.P.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 182-3
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY, EARTH SCIENCES
AND OCEANOGRAPHY
TOPIC TAGS--CATALYST ACTIVITY, DIAMOND, GRAPHITE, METHANOL, GAMMA
RADIATION, FORMALDEHYDE, ETHYLENE GLYCOL

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0748 STEP NO--UR/0456/70/004/002/0182/0183
CIRC ACCESSION NO--AP0119655
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119655

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIAMOND AND GRAPHITE WERE STUDIED TO DET. THEIR ACTIVITY IN DIFFERENT ELECTRONIC CONFIGURATIONS. SYNTHETIC AND NATURAL DIAMONDS WERE USED. THE SURFACE OF ALL SAMPLES WAS INCREASED BY VIBRATION GRINDING. THE SAMPLES WERE PURIFIED WITH HCL AND DRIED AT 120DEGREES. THE RADIATION CATALYTIC ACTIVITY WAS DETD. BASED ON THE TRANSFORMATION OF MEQH TAKING PLACE IN AN ABSORBED LAYER AT ROOM TEMP. THE SAMPLES WERE DEGASSED AT 400DEGREES AND MEQH VAPORS WERE ADSORBED ON THEM BY COOLING THEM TO ROOM TEMP. THEN THE SAMPLES WERE IRRADIATED WITH PRIME60 CO GAMMA RAYS, AND THE PRINCIPAL PRODUCTS FORMED WERE CH SUB2 O AND ETHYLENE GLYCOL. THE TOTAL PRODUCTS FORMED EXCEEDED BY A FACTOR OF 100 THE TOTAL OBTAINED BY THE HOMOGENEOUS RADIOLYSIS OF MEQH. THUS DIAMONDS WITH A WIDTH OF THE FORBIDDEN BAND OF 7 EV TRANSFER ENERGY WELL. NO DIFFERENCE IN ACTIVITY WAS FOUND BETWEEN SYNTHETIC AND NATURAL DIAMONDS. GRAPHITE DID NOT TRANSFER THE ABSORBED ENERGY. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/1

USSR

UDC 621.315.592

BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.V., LITVIN, Yu.A.,
and SMIRNOV, L.S.

"Electrical and Optical Characteristics of Artificial Semiconductor Boron-Doped
Diamonds"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

Abstract: The artificial diamond specimens were doped by boron in their growth process, and had a carrier concentration, determined by the Hall effect at room temperature, within the limits of $5 \cdot 10^{16}$ to 10^{18} cm^{-3} , corresponding to a boron content of 0.25 to 0.25% by weight. With the variation in concentration of the boron the color of the crystals changed from blue to black. The crystals used in the measurements were cubic, with an edge of 0.5 to 1.5 mm, or in octahedral form. The following characteristics were investigated: type of conductivity, from thermoelectrical measurements; the resistance as a function of the temperature in the interval of 300-800° K, in which the two-contact method of

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USSR

BEZRUKOV, G.N., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

electrical measurement was used, with the electrodes made of silver or graphite; radiation recombination spectrum at temperatures of 300 and 90° K with electron pulse excitation, and its dependence on the excitation density. In this latter, the electron energy was 200 kev with a pulse duration of $0.3 \cdot 10^{-6}$ seconds. Also investigated was the duration of the afterglow after the excitation pulse stopped, and its dependence on the wavelength. The authors found these diamond semiconductors to be of the p type.

2/2

1/2 038 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CERTAIN ELECTRICAL AND OPTICAL PROPERTIES OF ARTIFICIAL BORON, DOPED
SEMICONDUCTOR DIAMONDS -U-
AUTHOR-(05)-BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO,
L.F., LITVIN, YU.A.
COUNTRY OF INFO--USSR
SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, APR. 1970, P 693-696.
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRIC PROPERTY, OPTIC PROPERTY, SEMICONDUCTOR R AND D,
DIAMOND, BORON, LUMINESCENCE SPECTRUM, NITROGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0068 STEP NO--UR/0449/70/004/000/0693/0696
CIRC ACCESSION NO--AP0125903
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125903

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE TEMPERATURE DEPENDENCE OF THE RESISTANCE OF ARTIFICIAL BORON DOPED DIAMOND CRYSTALS OF VARIOUS CONCENTRATION, DURING THE GROWTH PROCESS, AT TEMPERATURES RANGING FROM 300 TO 800 DEG K. THE TYPE OF CONDUCTIVITY OF THE CRYSTALS, AND THE LUMINESCENCE SPECTRA FOR FAST ELECTRON EXCITATION AT TEMPERATURES BETWEEN 90 AND 300 DEG K ARE STUDIED IN THE RANGE FROM 3000 TO 10,000 A. IT IS FOUND THAT SUCH CRYSTALS HAVE A P TYPE CONDUCTIVITY WITH A BORON ACCEPTOR LEVEL OF 0.35 EV, AND THAT THE CRYSTALS ARE COMPENSATED BY A DEEP SEATED NITROGEN LEVEL (3.6 EV) DETERMINED FROM THE LUMINESCENCE SPECTRUM OF THE CRYSTALS.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT FIZIKI POLUPROVODNIKOV, NOVOSIBIRST, USSR.

UNCLASSIFIED

USSR

UDC 621.396:6-181.5

KOLESNIKOV, D. P., ORESHKOV, YU. YE., PERLICH, YU. L., BUTUZOV, V. S.

"Electron Pulse Adjustment of Thin-Film Resistors"

Elektron. prom-st'. Nauch.-tekhn. sb. (Electronics Industry. Scientific and Technical Collection), 1971, No 4, pp74-75 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5V273)

Translation: An adjustment method based on eliminating unstable lattice defects arising on condensation of the vapors of the initial material by controlled annealing with transmission of short current pulses through the resistor is described. The results of studying the magnitude of the change in resistance as a function of the amplitude, duration and the number of pulses are presented. There are 3 illustrations and a 2-entry bibliography.

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USSR

UDC: 621.375.127(088.8)

BUFUZOV, Yu. A., ROZHDESTVENSKIY, A. N., SMOL'KOV, V. V., UCHAYEV, A. L.

"A Protection Device for a Low-Frequency Amplifier"

USSR Author's Certificate No 278771, filed 29 May 69, published 3 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D128 P)

Translation: A device is proposed for protecting an audio frequency amplifier under overloads. The device contains preamplification stages, a push-pull output, and a feedback circuit with transformer. To improve the reliability and speed of the protector, the base of the transistor in the feedback circuit is loaded by a diode bridge connected to the transformer, and the collector is loaded by a voltage divider. Connected between the resistors of the voltage divider is the controlling electrode of a protection thyristor. The cathode of this thyristor, the collector of the input transistor and the emitter of the output transistor (of different polarity) in the preamplifier are connected to the negative terminal of the power supply through a current-limiting resistor.

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- 1 -

USSR

UDC 621.373.826:621.317

ANGERT, N. B., BUTYAGIN, O. F., ZORENKO, V. P., KUDRYAVTSEVA, A. P., KUSHNIR, V. R., RUSTAMOV, S. R.

"Phase Matching Angles and Temperatures for Lithium Metaniobate Crystals with Different Stoichiometry"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), Moscow, No 5, 1971, pp 128-129 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D454)

Translation: The results of measuring the phase matching angles and temperatures for generation of the second harmonic in LiNbO_3 crystals with stoichiometric coefficient from 0.9 to 1.2 are discussed. A helium-neon laser ($\lambda = 1152$ nm) and a YAG:Nd³⁺ garnet laser ($\lambda = 1064$ nm) were used for the measurements. The results obtained are in good agreement with the calculated results. There are 2 illustrations and a 6-entry bibliography.

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1/2 007
UNCLASSIFIED
TITLE--STABILIZATION OF THE VISCOSE FIBER PARAMETERS DURING FORMING -U-
PROCESSING DATE--04DEC70
AUTHOR--(04)-REZNIK, K.YA., GAYDUKOV, K.A., GRITSKOV, I.V., BUTYAGIN, P.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (2), 49-52
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--RAYON, TEXTILE INDUSTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0102
STEP NO--UR/0183/70/000/002/0049/0052
CIRC ACCESSION NO--AP0132395
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SPINNING RAYON FIBERS
DIFFERENCES ARE OBSD. IN FIBER QUALITY FROM 1 SPINNERET HEAD TO ANOTHER.
THESE DIFFERENCES ARE CAUSED BY DIFFERENCES IN THE RESIDENCE TIMES OF
VISCOSE IN THE CONDUITS OF THE SPINNING MACHINE. A RECIRCULATION METHOD
IS PROPOSED AND SUPPORTED BY MATH. DEDUCTIONS FOR EQUALIZING THE
RESIDENCE TIMES. FACILITY: KIEV FILIAL, VNIIV, KIEV, USSR.

UNCLASSIFIED

1/2 036

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--LUMINESCENCE ACCOMPANYING MECHANICAL DEFORMATION AND FAILURE OF
POLYMERS -U-

AUTHOR--(05)-BUTYAGIN, P.YU., YEROFEYEV, V.S., MUSAYELYAN, I.N.,
PATRIKEYEV, G.A., STRELETSKIY, A.N.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 290-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE, MECHANICAL FAILURE, ELONGATION, POLYMER,
POLYTETRAFLUOROETHYLENE, POLYETHYLENE TEREPHTHALATE, PLASTIC FILM,
POLYETHYLENE, PROPYLENE, POLYVINYL CHLORIDE, NATURAL RUBBER,
VULCANIZATE, POLYMETHYLMETHACRYLATE, THERMAL DEGRADATION, POLYMER
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LUMINESCENCE OCCURRING DURING CONTRACTION, ELONGATION, AND FAILURE OF POLYMERS WAS STUDIED ON A SNK-7 IKHF APP. EQUIPPED WITH PHOTOMULTIPLIERS FEU-29 (LAMBDA SUBMAX EQUALS 400 PLUS OR MINUS 40 MMU), FEU-13 (LAMBDA SUBMAX EQUALS 410 PLUS OR MINUS 10 MMU), AND FEU-22 (LAMBDA SUBMAX EQUALS 750 PLUS OR MINUS 100 MMU). A CROSS SECTIONAL DIAGRAM OF THE APP. AND ITS MODE OF OPERATION ARE PRESENTED. THE MOST INTENSIVE LUMINESCENCE DURING FAILURE WAS OBSD. IN POLY (TETRAFLUOROETHYLENE) FP-4 (I) AND POLY(ETHYLENE TEREPHTHALATE) (II) FILMS; THE LEAST LUMINESCENT POLYMERS WERE HIGH PRESSURE POLYETHYLENE, ETHYLENE PROPYLENE COPOLYMER (III), ETHYLENE ALPHA BUTYLENE COPOLYMER, POLY(VINYL CHLORIDE), POLYPROPYLENE, AND NATURAL RUBBER (IV) VULCANIZATES. FAILURE OR SUDDEN CONTRACTION IN I-IV FILMS WAS ACCOMPANIED BY POST LUMINESCENCE, (GREATER THAN OR EQUAL TO 15 MIN). THE LUMINESCENCE INTENSITY WAS LOW IN ALL CASES AND EXCEEDED THE SENSITIVITY THRESHOLD OF THE PHOTOMULTIPLIERS ONLY BY A FACTOR OF 10 PRIME2-10 PRIME3. A HYPOTHESIS WAS ADVANCED TO ACCOUNT FOR THE LUMINESCENCE. STUDY OF THERMAL LUMINESCENCE OF POWD. POLYMERS SUGGESTED THAT LUMINESCENCE IN POLY (ME METHACRYLATE) AND POLYSTYRENE AT 270-330DEGREEK WAS DUE TO RECOMBINATION OF PEROXIDE RADICALS FORMED DURING MECH. SCISSION OF MACROMOLS., WHEREAS INTENSIVE LUMINESCENCE ABOVE 330DEGREEK WAS DUE TO OXIDATIVE THERMAL DEGRADATION INITIATED BY DECOMPD. HYDROPEROXIDES.

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UDC 619:616.931.452:616.931.214.2-085.37:636.4

BUT'YANOV, D. D., Vitebsk Veterinary Institute

"Simultaneous Immunization of Swine Against Plague and Erysipelas"

Moscow, Veterinariya, No 2, 1970, pp 39-41

Abstract: Laboratory and field tests showed that a mixture of an avirulent dry plague vaccine and mildly virulent erysipelas vaccine effectively immunized swine of various ages against both diseases. Each animal received 2 inoculations 14 to 20 days apart. Immunity to plague and erysipelas set in 5 to 7 days after the first inoculation and 7 to 9 days after the second inoculation, respectively, and it continued for 8 or 9 months. None of 4282 animals on 5 farms, including 860 pigs under 4 months of age, contracted either disease or developed any post-vaccinal complications.

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USSR

UDC 612.27(23+251)

ALESHINA, T. P., BUT'YEVA, I. V., and IL'ICHEVA, YE. M., Department for Study of Health Resort Resources, Central Institute of Health Resort Medicine and Physicial Therapy

"Dynamics of the Weight of Oxygen in the Air on the Plains and in the Mountains"

Moscow, Voprosy Kurortologii, Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 1, 1970, pp 58-63

Abstract: Analysis of the weight of oxygen in the air over a period of 10 years (meteorological data of the Moscow University Observatory) revealed a distinct seasonal pattern. The lowest values were recorded in July, 269.9 g/m^3 , and the highest in January, 301.4 g/m^3 . This index remained more or less the same in the spring and fall, $278\text{-}288 \text{ g/m}^3$. It decreased with increasing height of the locality. The mean monthly values were highest at the plains and low-mountain stations, $30\text{-}35 \text{ g/m}^3$, and lowest in high-mountain regions, $16/5 \text{ g/m}^3$. Among other relationships noted, the weight of oxygen was somewhat higher on sunny, rainless days than on mostly sunny days, but with short periods of precipitation during the day or at night. The weight

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ALESHINA, T. P., et al., Moscow, Voprosy Kurortologii, Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 1, 1970, pp 58-63

of oxygen also rose as the temperature dropped. The weight of oxygen is apparently influenced by climatic factors. For example, oxygen in the air of mountainous regions in the Caucasus was found to be 3-4 g/m³ heavier than in the mountainous regions of Central Asia, when measured at stations situated at the same altitude.

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USSR

UDC 538.214

BUTYLENKO, A. K., SUPRUNENKO, P. A., and KAL'NAYA, G. I., Institute of Metal Physics, Academy of Sciences Ukr SSR and Kiev State University

"Coexistence of Antiferromagnetism and Superconductivity in the Cr-Re System"
Kiev, Metallofizika, No 40, 1972, pp 61-64

Abstract: A comparison is made between known data and experimental data on the change of physical properties in the region of solid solutions of rhenium in chromium in connection with the observed transition, in relation to concentration, of the alloys from the antiferromagnetic state to superconductivity. The hypothesis was expressed that the indicated transition can be caused by the occurrence of ordering in the alloys with the formation of a superconducting phase of the type $\beta\text{-W}(\text{Cr}_3\text{O})$ and that with the ordering processes there can be associated superconducting properties of the alloys in similar morphological systems Mo-Re, W-Re, and others. 2 figures, 27 bibliographic references.

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USSR

UDC 669.265'786'787.018.2:621.785.362

BUTYLENKO, A. K., and RAKITSKIY, A. N., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Chromium Ductile Wire"

Kiev, Metallofizika, No 40, 1972, pp 103-108

Abstract: Data are presented for an investigation of the mechanical properties and structure of chromium wire alloyed with yttrium, lanthanum, cerium, praseodymium, and gadolinium (0.5-1.0 wt.%). It was shown that chromium wire with a diameter of 0.4-0.5 mm possesses adequately high ductility (T_x down to -90°C) and strength up to 126 kg/mm². It was found that alloying with lanthanum is the most advantageous. Wire with a diameter of 100 microns was produced from an alloy of chromium with 0.5% La. 5 figures, 2 tables, 30 bibliographic references.

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USSR

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BUTYLIKIN, V. S., KAPLAN, A. Ye., and KHRONOPULO, YU. G.

"The Self-Influence of Light Due to Forced Raman Scattering"

Leningrad, Optika i Spektroskopiya, Vol XXXI, No 2, Aug 71, pp 224-229

Abstract: It is believed that forced Raman scattering (FRS) is the cause of the self-influence of light. In a previous work the authors discussed the conditions under which FRS may cause self-focusing of light. In this article they examine the dynamics of this type of self-focusing, as well as the dynamics of the self-bending of a beam of light with a Stokes component for the case of nonsymmetric distribution of the field in the pumping beam. They show that self-influence due to FRS is almost always "weak." This means, for example that during self-focusing, the layer in which a large nonlinear addition is made to the magnitude of the dielectric constant may be considered a fine lens.

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